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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,659

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EXAMINER

MCKANE, ELIZABETH L

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

10/27/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,659	<b>Applicant(s)</b> HAMANO ET AL.	
	<b>Examiner</b> ELIZABETH L. MCKANE	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-20, 22, 26, 27, 29 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 21, 23-25, 28 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Line 3 of the claim states that the heating means “covers the outer peripheral surface of the filtration unit and is not in contact with the filtration unit.” It is unclear how the heating means can cover the outer peripheral surface of the filtration unit without being in contact therewith.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 18, 22, 26, 27, 29, and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trump (US 889,159) in view of Sommermeyer (US 1,845,893).

At the outset it is noted that the recitation of the treatment of “volume-reduced gel-state polystyrene resin” is considered to be an intended use of the filtration apparatus. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

With respect to claim 18, Trump teaches an apparatus comprising a filtration unit **E** in the form of a hollow cylinder having an outer peripheral surface formed of a filter portion, a spiral plate **e** provided on the inner surface of the filtration unit **E**, projecting toward the inside of the filtration unit and spiraling in the axial direction of the filtration unit, and a holding/driving portion **A<sub>2</sub>** for rotating the filtration unit about the axis thereof. See page 2, lines 21-39. Trump is silent with respect to the holding/driving portion holding both axial ends of the filtration unit. However, this type of rotation means was known in the art at the time of the invention. Sommermeyer discloses a holding/driving portion **g** for driving drum **b**, wherein the holding/driving portion supports the drum at both axial ends (Figure 1). See also Figure 2 wherein worm **i** is supported and rotated at the axial ends thereof. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a similar holding/driving portion for the apparatus of Trump as being a functional equivalent of the rollers **A<sub>2</sub>** Trump.

As to claim 22, the spiral plate **e** of Trump is a protrusion that extends in the axial direction of the filtration unit.

With respect to claims 26, 27, and 34, there are no positive structural limitations in these claims, only an intended use of the apparatus. For example, the second filtration apparatus (claims 26 and 27) is recited only in the context of an intended further step – thus, an intended use.

As to claim 29, Trump discloses a feed pipe **C**.

With respect to claim 31, the filtration unit is slightly slanted. See Figure 1. The “first end” is the end located on the upper side.

As to claims 32 and 33, Trump teaches that a heating fluid can be supplied through pipe **C<sub>2</sub>** into shell **A**. Thus, shell **A** will form a heating means covering the outer peripheral surface of the filtration unit and not in contact with the filtration unit.

6. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trump and Sommermeyer as applied to claim 18 above, and further in view of Hata (US 3,802,566).

The filtration portion of Trump is disclosed to be a perforated wall (page 2, lines 26-31) and is not circumferential slits. Hata teaches that it was known in the art at the time of the invention to use circumferential slits as a means of filtering a fluid. The opposing walls defining each slit may have different heights, depending upon the characteristic of the material being filtered. See col.1, lines 45-48; Figure 1. As Hata

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teaches that this particular type of filter avoids filter clogging (col.1, lines 4-6), it would have been an obvious modification of the filter of Trump.

***Allowable Subject Matter***

7. Claims 21, 23-25, 28, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: With respect to claim 21, although Hata teaches a slit filter, the slits of Hata are not spirally provided. As to claims 23-25, the slits of Hata are not provided such that each slit has an inner space and an outer space, the inner space being provided in an inner portion of the filter portion and extending in the radial direction of the filter portion; the outer space being provided in an outer portion of the filter portion and extending in the radial direction of the filter portion; and the inner space and outer space are connected with a connecting portion having a width less than the width of the inner space. With respect to claim 18, neither Trump nor Sommermeyer or Hata teach or suggest a scraper which is provided so as to abut, at the tip thereof, the outer peripheral surface of the filter portion. As to claim 30, the feed pipe of Trump **C** is not provided with a trough having an opening on the upper side thereof and located inside the filtration unit.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nolan (US 3,585,924) and Schroeder (US 5,653,879) both teach known filtration apparatuses using a spiral blade within a perforated filter element.

However, neither teach rotation of the filter element itself.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH L. MCKANE whose telephone number is (571)272-1275. The examiner can normally be reached on Mon-Fri; 5:30 a.m. - 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth L McKane/  
Primary Examiner, Art Unit 1797

elm  
25 October 2009